REMARKS

Claims 14-31 are pending in the present application. Claims 14 and 17 have been amended. Support for the amendment of "X" and "R^1" of claim 14 can be found at page 5, lines 29-30, and page 5, lines 44-46 and page 6, lines 12-13, respectively. Claim 17 has merely been amended to more clearly define the invention. The foregoing amendments do not add any new material and their entry is respectfully requested.

Reexamination of the application and reconsideration of the rejections and objections are respectfully requested in view of the above amendments and the following remarks, which follow the order set forth in the Office Action.

I. Rejection of Claims 14-31 Under 35 U.S.C. § 112, First Paragraph

Claims 14-31 have been rejected for allegedly failing to provide enablement for active compounds other than pyraclostrobin and epoxiconazole for the treatment of plants. The Office Action states that, "not all combinations of polymer carriers and chemical actives are compatible for controlled release." OA, p. 3, last sentence.

The presently claimed active composition comprising a copolymer does not relate to controlled release compositions. Rather, the composition is an adjuvant in the treatment of plants. This is an important distinction because in controlled release compositions the selection of a suitable polymer or carrier depends on the physical and chemical properties of the chemical active to achieve bioefficacy, compatibility, etc. On the other hand, adjuvants act as Modifiers or Actuators, and a specific interaction between the active compound and the copolymer is simply not necessary.

Modifiers affect the wetting, sticking and spreading of a formulation. Actuators break up the waxy cuticle of the plants and improve penetration of the active into the cuticle. Specifically, altering the surface tension of a formulation droplet improves wetting or spreading. To achieve increased sticking on the leaf surface, the polymer should form a film, which is as uniform as possible. Similarly, the break-up of the waxy cuticle depends on the properties of the actuator, but not the active. Given the independent nature of the active compound and the properties of the adjuvant, Applicants respectfully submit that it would not require undue experimentation for a skilled artisan to make and use the invention in its present scope as claimed based on Applicant's disclosure. Therefore, Applicants request that this rejection be withdrawn.

II. Rejection of Claims 14-31 Under 35 U.S.C. § 112, Second Paragraph

Claims 14-31 have been rejected for allegedly being indefinite. The Office Action recommends replacing the term "general formula" with the term "formula." OA, p. 5. Applicants submit herewith amended claims in which the term has been replaced as recommended. Thus, Applicants believe that this rejection of claims 14-31 has been rendered moot.

III. Rejection of Claims Under 35 U.S.C. § 103(a)

a. Claims 14-16, 18-28 and 30-31

Claims 14-16, 18-28 and 30-31 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 99/37285 ("Narayanan"). Applicants respectfully traverse this rejection.

Currently amended present claim 14 is directed to a composition comprising at least one active compound for the treatment of plants; and at least one N-vinylamide-based copolymer comprising, (i) at least one N-vinylamide; (ii) at least one ester of an ethylenically unsaturated carboxylic acid, wherein the ester has a structure of Formula I; and optionally (iii) at least one additional copolymerizable comonomer. Each of the other above-listed claims depends directly or indirectly from claim 14, and therefore contains each limitation of claim 14. In the amended claims, R^1 of Formula I has been amended to long chain, *i.e.* C_{5-15} alkyl residues, and X is defined as oxygen. Moreover, Formula I does not contain nitrogen.

The N-vinylamide-based copolymers of the present invention advantageously exhibit the properties of a polymer, *e.g.* the ability to form films, and a surface-active compound, *e.g.* the ability to degrade the waxy cuticle and modify surface tension.

Narayanan discloses, "polysaccharide particles infused with a copolymer of excess N-vinyl lactam monomer and a minor amount of a water insoluble comonomer." Page 2, under "The Invention." Narayanan further discloses that the water insoluble comonomer contains an "olefinically unsaturated group", *e.g.* a double or triple bond. Page 3, lines 9-10. Specifically, when Narayanan discusses acrylates and methacrylates, it is in the context of "lower alkylamino lower alkyl acrylates and methacrylates." Page 3, lines 17-18.

To establish a *prima facie* case of obviousness, first, there must be some suggestion or motivation, either in the references themselves or in the knowledge in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success *and* third, the cited art reference or references when combined must teach or

suggest all the claim limitations. See MPEP § 2143. All of these criteria have not been met for the following reasons.

First, Narayanan discloses a copolymer that is chemically different from the presently claimed active composition comprising a copolymer. Narayanan discloses, "polysaccharide particles infused with a copolymer of excess N-vinyl lactam monomer and a minor amount of a water insoluble comonomer." Page 2, under "The Invention." Narayanan further discloses that the water insoluble comonomer contains an "olefinically unsaturated group", *e.g.* a double or triple bond. *Id.* at p. 3. This general teaching, however, cannot render obvious all comonomers that also contain a double or triple bond. Specifically, when Narayanan discusses acrylates and methacrylates, it is in the context of "lower alkylamino lower alkyl acrylates and methacrylates." Page 3, lines 17-18. For guidance on the meaning of "lower alkyl" in Narayanan, a specific reference is made with regard to substituents on the lactam which reads, "lower alkyl of 1 to 4 carbons." Page 3, last line. Moreover, Examples 5 and 6 refer to dimethylamino *ethyl*methacrylate (DMAEMA) and dimethylamino *propyl*methacrylate. In agreement with the specification, Narayanan's claim 10 recites "lower alkyl" and claim 11, which depends thereon, recites "dimethylamino ethyl methacrylate and dimethylamino propyl methacrylate." On the other hand, the presently claimed composition requires a longer chain, *i.e.* C_{5-15} alkyl residue, and does *not* contain nitrogen. Thus, Narayanan does not teach each and every limitation of the present claims. For at least the reason, the Office Action fails to establish a *prima facie* case of obviousness.

Second, as discussed above, Narayanan is *not* directed to an adjuvant composition. There would have been no expectation of success in arriving at the presently claimed adjuvant composition at least because the copolymer of Narayanan is selected primarily to provide soil, hair or skin substantivity or starch dispersibility.

> The presence of the hydrophobic monomer component is critical for providing the improved soil, hair or skin substantivity.... Specifically, the polysaccharide, e.g. starch, when combined with the copolymer of this invention, has an altered tertiary structure in which the intramolecular hydrogen bonding, normally present in the unaltered state, is disrupted by the introduction of hydrophobic monomer units which interact with the hydrophobic segment of the starch.... Consequently, intramolecular bonding is inhibited and replaced by hydrogen bonding with water which is responsible for the significantly improved dispensability of the present matrix composition.

Page 4, lines 7-24. Conversely, the presently claimed active composition comprising a copolymer provides the properties of a polymer, *e.g.* the ability to form films, and a surface-active compound, *e.g.* the ability to degrade the waxy cuticle and modify surface tension. Even if the copolymer of Narayanan has one or more of these properties, Narayanan, as discussed above, is directed to a chemically different copolymer. Thus, there would have been no expectation of success in arriving at the claimed composition. For at least the reason, the Office Action fails to establish a *prima facie* case of obviousness.

Finally, the presently claimed active composition comprising a copolymer is an adjuvant in the treatment of plants with active components. *See*, Specification, p. 21, lines 8-22. Adjuvants, as discussed above, act as Modifiers or Actuators. Thus, there would have been no motivation to modify the teachings of Narayanan to arrive at the *chemically different* composition as presently claimed. This is particularly so in this case in view of the *different purpose* of the copolymer of Narayanan. Thus, there would have been no motivation to modify the teachings of Narayanan to arrive at the presently claimed composition. For at least the reason, the Office Action fails to establish a *prima facie* case of obviousness.

b. Claims 17 and 29

Claims 17 and 29 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 99/37285 ("Narayanan") in view of USPN 3,966,902 ("the '902 patent"). Applicants respectfully traverse this rejection.

Claim 17 is directed to an active composition comprising at least one copolymer (ii) wherein this component has a carboxylic acid ester of Formula Ia. Claim 29 is directed to a method of treating plants with the composition of claim 17.

At page 10, the Office Action states that the '902 patent discloses, "polymers having a very broad range of physical and chemical properties may be obtained." The Office Action then concludes that it would have been obvious "to adjust the copolymer matrix of Narayanan et al. by using alkoxyalkyl acrylates or methacrylates as the hydrophobic comonomer in order to optimize the physical and chemical properties thereof...." Pages 10-11.

As discussed more fully above, Narayanan is directed to, "a polysaccharide composition having greatly improved, stable dispersibility, soil substantivity and leach inhibition." Page 1, last paragraph. These formulations can provide "sustained release" or an "ecologically safe and biodegradable matrix." Top of page 2. Narayanan repeatedly points

to the desired soil, hair or skin substantivity and starch dispersibility properties of its copolymer. *See, e.g.* page 4, lines 7-24. On the other hand, the '902 patent is directed to "a polymer complex composed at least in part of a polymer containing hydrophilic functional groups and containing aluminum, zinc or zirconium metal bound in complex form and having entirely novel properties...." Col. 1, lines 58-62.

Applicants respectfully submit that the Office Action has not articulated a single specific reason to combine Narayanan with the '902 patent. The Office Action states, "polymers having a very broad range of physical and chemical properties may be obtained." Page 10. The Office Action then concludes that it would have been obvious "to adjust the copolymer matrix of Narayanan et al. by using alkoxyalkyl acrylates or methacrylates as the hydrophobic comonomer in order to optimize the physical and chemical properties thereof...." Pages 10-11. However, the Office Action never addresses what those properties are or how the '902 patent's polymer would enhance Narayanan's desired soil, hair or skin substantivity and starch dispersibility properties.

Notwithstanding that there is no specific reason given to combine the teachings, in the '902 patent's polymer, "a portion of the monomer or monomers having the complex forming groups can be replaced by a monomer or monomers which do not contain any complex forming group such as ... alkoxyalkyl acrylates [and] alkoxyalkyl methacrylates...." Col. 2, line 66, through col. 3, line 5. Thus, the '902 patent's polymer still contains monomers that complex with aluminum, zinc or zirconium metals. Col. 1, lines 14-16. The Office Action gives no basis for why a skilled artisan would incorporate such a metal-complexing polymer into Narayanan's polysaccharide matrix or that such a combination would even work. For at least the reason, the Office Action fails to establish a *prima facie* case of obviousness.

Finally, neither Narayanan nor the '902 patent teach or suggest the specific limitation of a longer chain, *i.e.* C_{5-15} alkyl residue of an alkoxyalkyl. Rather, the '902 patent only refers generically to optionally replacing a portion of the complexed polymer with "alkoxyalkyl acrylates [and] alkoxyalkyl methacrylates." *Id.* A general teaching of a class of chemicals with nothing more does not render every species obvious. Thus, the combination of Narayanan and the '902 patent does not teach each and every limitation of the present claims. For at least the reason, the Office Action fails to establish a *prima facie* case of obviousness.

For the foregoing reasons, claims 14-31 are considered allowable. A Notice to this effect is respectfully requested. If any questions remain, the Examiner is invited to contact the undersigned at the number given below.

Respectfully submitted,

HUTCHISON LAW GROUP PLLC

Date: MARCH 3, 2008

By: _____
Bryan L. Skelton
Registration No. 50,893

P.O. Box 31686
Raleigh, NC 27612
+1.919.829.9600

220740